

12. *UNIO ÆGYPTIACUS*, Cailland.

*Hab.* Various parts of the Nile; Albert Nyanza (*Baker*).

13. *UNIO CAILLAUDI*, Férussac.

*Hab.* Same as preceding.

14. *UNIO BAKERI*.

*Unio bakeri*, H. Adams, Proc. Zool. Soc. 1866, p. 376.

*Hab.* Albert Nyanza (*Baker and Emin*).

Only one fresh and two dead valves without the epidermis were obtained by Sir Samuel Baker. Five odd valves, which have been presented by Mr. Waller to the Museum and are in good condition, show that this species, like most others of the genus, is very variable in form, and that the extent and coarseness of the zigzag wrinkling of the surface is very inconstant. A number of so-called species of *Unio* described by Bourguignat<sup>1</sup> from the Victoria Nyanza approach very closely to *U. bakeri*, and indeed I should be surprised if several of them on comparison might not satisfactorily be classed with it.

15. *UNIO ACUMINATUS*.

*Unio acuminatus*, H. Adams, Proc. Zool. Soc. 1866, p. 376.

The two valves collected by Sir S. Baker are all that is known of this species. It is of a more slender form than the preceding, and has down the posterior dorsal area two subparallel shallow grooves or impressed rays with a raised space between them. This feature is represented in *U. bakeri* by two divergent colour-rays in the same part, but rather more remote from one another.

## 5. On the Lepidoptera received from Dr. Emin Pasha.

By ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

[Received December 5, 1887.]

The Lepidoptera received from Dr. Emin Pasha are referable to no less than 156 species, of which thirteen Butterflies and two Moths are new to science; one or two of these are extremely variable and, had the extremes only been obtained, might fairly have been regarded as distinct species.

The collection contains a combination of South-western and North-eastern forms, by far the greater number, especially of those obtained at Wadelai in 1887, being identical with Abyssinian species; a few more southerly forms, identical with species from Kilma-njaro, crop up here and there, such as *Junonia infracta*, *Teracolus aurigineus*, and others.

<sup>1</sup> Moll. fluv. du Nyanza Oukéréwé (Victoria Nyanza), Paris, 1883, pp. 3-15.

## RHOPALOCERA.

## NYMPHALIDÆ.

## EUPLÆINÆ.

## 1. LIMNAS CHRYSIPPUS.

*Papilio chrysippus*, Linn. Mus. Lud. Ulr. p. 263 (1764).

♂ ♀. Kangasi, 7th and 20th July; ♀. Fóda, 26th November, 1885, Stazione Gadda, 20th February, 1886; ♂ ♀. Monbuttu, July and August (1886?); Wadelai, 12th January, 5th and 11th March, 1887.

From this form to its variety *L. alcippoides* there is a perfect transitional series commencing with a mere whitening of the median branches of the secondaries and gradually increasing to a well-defined white patch.

Var. *ALCIPPOIDES*, Moore, P. Z. S. 1883, p. 238, pl. xxxi. fig. 1.

♂ ♀. Kangasi, 17th and 25th July and 21st November, 1883; ♂. Stazione Gadda, 7th May, 1884; ♂ ♀. Fóda, 23rd November, 1885; Monbuttu, July and August; Wadelai, 12th and 13th January, 1887.

This is also linked by intermediate steps to *L. alcippus*: the latter therefore, though a good constant species on the West Coast from Sierra Leone northwards, can here, as at Aden, be only regarded as a variety of *L. chrysippus*.

Var. *ALCIPPUS*, Cramer, Pap. Exot. ii. pl. cxxvii. E, F (1779).

♂ ♀. Tobbo, 21st May; Kangasi, 14th, 17th, 20th, 22nd, 25th, and 27th July; 12th and 17th October; 14th, 18th, and 21st November; Stazione Bauri, September 1883; Stazione Gadda, 26th January, 1884; Fóda, 1st November, 1885; Wadelai, 13th and 27th January, 1887; Monbuttu in July and August.

## 2. LIMNAS KLUGII.

*Limnas klugii*, Butler, P. Z. S. 1885, p. 758. n. 2.

♀. Fóda, 17th and 23rd November, 1885.

Three examples of this species were obtained at Fóda; none elsewhere. No intermediates tending to link it to *L. chrysippus* exist in the collection, so that probably it does not interbreed with the latter in any of the localities visited.

## 3. TIRUMALA PETIVERANA.

*Danais limniace*, var. *petiverana*, Doubleday and Hewitson, Gen. Diurn. Lep. p. 93, pl. 12. fig. 1 (1847).

Stazione Bauri, September 1883; Kangasi, 27th July and 14th November, 1883; Monbuttu, in July and August.

This is a common South-western form.

## 4. AMAURIS HYALITES.

*Amauris hyalites*, Butler, Cist. Ent. i. p. 209 (1874).

♂ ♀. Kangasi, 17th and 27th July, 1883.

Originally described from a specimen taken at Ambriz by the late Mr. Monteiro.

SATYRINÆ.

5. GNOPHODES DIVERSA.

*Gnophodes diversa*, Butler, Ann. & Mag. Nat. Hist. ser. 5, vol. v. p. 333 (1880).

Fóda, 28th October and 10th November, 1885.

Smaller than Natal specimens, but otherwise identical.

6. MELANITIS SOLANDRA, var.

*Papilio solandra*, Fabricius, Syst. Ent. p. 500. n. 244 (1775).

♀. Stazione Bauri, July 1883; ♂. Fóda, 23rd October, 1885.

This is the Congo type of the species; whether it is distinct from the *M. helena* of Westwood or even from the true *M. leda* of Linnæus can only be shown by careful breeding; that it is distinct from my *M. determinata* (the *M. leda* of Indian authors) may be safely taken for granted, since the red-brown, rufous, and russet types do not occur in India.

It is true that in 1867, as Mr. Trimen says, I communicated a paper to the 'Annals and Magazine of Natural History,' in which I described the whole of the olive-brown and rufous types, all the simple-winged and falcated types, all the ocellated and non-ocellated types as varieties of *M. leda*; but I must confess that after the lapse of 20 years I feel considerable doubt as to the correctness of my then untrained opinion; as a matter of fact, nobody has conclusively proved the identity or non-identity of the many named types which have been associated under the name of *M. leda*. This being the case I prefer, when naming a collection, to quote the description or figure which fits the specimens before me, though at the same time I abstain from adding to the series of names which may have to be abolished.

7. MYCALESIS INJUSTA.

*Mycalesis injusta*, Wallengren, Lep. Rhop. Caffr. p. 33. n. 1 (1857).

Fóda, 22nd and 23rd October, 1885; Monbuttu, July and August.

8. MYCALESIS EUSIRUS.

*Mycalesis eusirus*, Hopffer, Ber. Verh. Ak. Berl. 1855, p. 641. n. 13.

♂. Tobbo, 21st May, 1883.

9. MYCALESIS CAFFRA.

*Mycalesis caffra*, Wallengren, Lep. Rhop. Caffr. p. 34. n. 2 (1857).

Kangasi, 22nd July, 1883; Fóda, 26th November, 1885.

The three preceding forms have been regarded as varieties of one

species, but the arguments brought forward in favour of their identity are not conclusive. Mr. Trimen regards all three as varieties of *M. safitza*, and adduces the fact that Hopffer himself marked his *M. eusirus* as synonymous with *M. safitza*, as conclusive evidence; unfortunately naturalists are but human, and it is astonishing what a difference abundant material will make in a man's views as to the distinctness of species.

10. *SAMANTA PERSPICUA*.

*Mycalesis perspicua*, Trimen, Trans. Ent. Soc. London, 1873, p. 104, pl. 1. fig. 3.

Tobbo, 21st May, 1883.

11. *YPTHIMA PUPILLARIS*, sp. n.

Allied to *Y. doleta*; smoky brown; wings above with pale external borders bounded internally by a darker stripe and traversed by two slender marginal lines; primaries with a large oval bipupillated ocellus, with blue pupils and yellow (dead-golden) iris, beyond the cell; secondaries with a smaller unipupillated ocellus on first median interspace and a very small double ocellus near anal angle: Under surface apparently similarly coloured but greyer, but actually (when seen through a lens) sandy brown, densely striated with dark olive-brown, with a stripe towards outer margin and a submarginal line dark brown; a marginal black line; fringe tipped with dark brown; ocellus of primaries rather brighter than above: secondaries with three ocelli, the first subcostal near apex; the second and third small, rounded, answering to those of the upper surface, but more equal in size and shape; the subanal ocellus, however, is bipupillated. Expanse of wings, ♂ 38 millim., ♀ 36 millim.

♀. "On the River Dangu," 14th June; ♂. "Ganyese Tambu (Sandel)," 15th June, 1883.

The female is a little paler and greyer than the male.

12. *YPTHIMA SIMPLICIA*.

*Ypthima simplicia*, Butler, Ann. & Mag. Nat. Hist. 4th ser. vol. xviii. p. 481 (1876).

Wadelai, 30th July, 1885; 9th April, 1887.

Originally received from Abyssinia.

13. *YPTHIMA ITONIA*.

*Ypthima itonia*, Hewitson, Trans. Ent. Soc. ser. 3, vol. ii. p. 287. n. 11, pl. 18. fig. 13 (1865).

Kangasi, 17th July; Stazione Bauri, September 1883.

Only two much-damaged examples were obtained.

14. *YPTHIMA ALBIDA*, sp. n.

Wings above silvery white; primaries with the base, costa, apical area, and external border suffused with smoky greyish brown; a partially obscured oval bipupillated subapical ocellus of the ordinary type: secondaries with a rather broad brown external border tapering

from anal angle to apex; an indication of a small ocellus near the outer margin on the first median interspace: under surface dark smoky brown, sparsely transversely striated with white; primaries with one and secondaries with three ocelli arranged as in *Y. pupillaris*. Expanse of wings 39 millim.

♂. Fódá, 20th October, 1885.

A rather worn male of this remarkable species was obtained; unlike all the other species in the genus, it resembles *Euptychia ocirrhoë* on the upper surface.

#### NYPHALINÆ.

##### 15. CHARAXES LUCRETIUS.

*Papilio lucretius*, Cramer, Pap. Exot. i. pl. 82. F, G (1779).

♀. Monbuttu, July or August.

##### 16. CHARAXES POLLUX.

*Papilio pollux*, Cramer, Pap. Exot. i. pl. 37. E, F (1776).

♂. Monbuttu, July or August.

##### 17. CHARAXES KIRKI.

♀. *Charaxes kirkii*, Butler, Ent. Month. Mag. xviii. p. 105 (1881).

♂. Toro, Fódá, 27th October, 1885.

The male is velvety blue-black; the primaries with a narrow bronze-greenish border, divided by dusky veins; the base shot with steel-blue; a blue spot within the anterior angle of the cell, three opaline white spots (only the central one large) at one third the distance from discoidal cell to apex, two similarly coloured spots and a dot at two thirds: secondaries with a bronze-greenish marginal lunulated stripe, followed by a black fringe, the first four divisions enclosing dark red curved dashes, the remainder more or less golden; a submarginal series of more or less lunate spots, separated from the greenish border by black curved dashes or semicircular spots; this series consists of white-edged spots, all, excepting two confluent ones at the anal angle (which are violet), being blue-green; a short distance from the submarginal series is a discal lunulate green line; on the under surface the male much resembles the female, differing just as the other black males do from their respective females.

##### 18. PALLA VARANES.

*Papilio varanes*, Cramer, Pap. Exot. ii. pl. 160. D, E (1779).

A fragment of this species was captured at Faro on the 7th November, 1885.

##### 19. HYPOLIMNAS MISIPPUS.

*Papilio misippus*, Linnæus, Mus. Lud. Ulr. p. 264 (1764).

♂. Stazione Bauri, September; ♂ ♀. Kangasi, 2nd, 16th, and 17th October and 21st November, 1883; Monbuttu in July and August.

## 20. HYPOLIMNAS INARIA.

*Papilio inaria*, Cramer, Pap. Exot. iii. pl. 214. A, B (1782).

Wadelai: ♂ ♀. 13th and 27th January; ♂. 29th and 31st March; 8th and 9th April, 1887.

This local form of *H. misippus* is chiefly distinguishable in the female sex, which resembles *Limnas klugii*; it can hardly be called a variety of *H. misippus*, inasmuch as it replaces it in the same localities in which *L. klugii* replaces *L. chrysippus*; yet the males of *H. misippus* and *H. inaria* seem almost, if not absolutely, identical in character.

## 21. HYPOLIMNAS SALMACIS.

*Papilio salmacis*, Drury, Ill. Ex. Ent. ii. pl. 8. figs. 1, 2 (1773).

A worn example was taken at Monbuttu in July or August.

## 22. PANOPEA LUCRETIA.

*Papilio lucretia*, Cramer, Pap. Exot. i. pl. 45. C, D (1779).

A good male example. Monbuttu, July or August.

## 23. CYMOTHOË CÆNIS.

*Papilio cænis*, Drury, Ill. Ex. Ent. ii. pl. 19. figs. 1, 2 (1779).

Kangasi, 13th November, 1883; Monbuttu, July and August.

## 24. EURYPHENE PLISTONAX.

*Eurypheue plistonax*, Hewitson, Ex. Butt. v. *Eur.* pl. 9. figs. 38, 39 (1871).

♀. Kangasi, 11th August, 1883.

Originally received from Angola.

## 25. EUPHÆDRA ELEUS.

*Papilio eleus*, Drury, Ill. Ex. Ent. iii. pl. 12. figs. 1, 2 (1782).

♀. Kangasi, 24th July, 1883.

## 26. ATERICA CUPAVIA.

*Papilio cupavia*, Cramer, Pap. Exot. iii. pl. 183. E, F (1780).

♂. Fóda, 3rd November, 1885.

## 27. ATERICA VERONICA, var.

*Papilio veronica*, Cramer, Pap. Exot. iv. pl. 325. C, D (1782).

♂. Stazione Bauri, September 1883.

The single example obtained is of a rich rufous-chocolate colour below, but does not differ in markings from the typical form.

## 28. HAMANUMIDA DÆDALUS.

*Papilio dædalus*, Fabricius, Syst. Ent. p. 482. n. 174 (1775).

Stazione Bauri, September 1883; Fóda, 22nd, 23rd, 26th, 28th, and 31st October, and 25th November, 1885; Wadelai, 16th January, 1887; Monbuttu in July or August.

## 29. JUNONIA WESTERMANNI.

*Junonia westermanni*, Westwood, Ent. Month. Mag. vi. p. 278 (1870).

♂. Monbuttu, July or August.

## 30. JUNONIA CLELIA.

*Papilio clelia*, Cramer, Pap. Exot. i. pl. 21. E, F (1775).

♂ ♀. Stazione Bauri, September 1883; Fóda, 20th November, 1885; Monbuttu in July and August; Wadelai, 11th, 13th, 20th, 27th, and 31st January, 1887.

## 31. JUNONIA CEBRENE.

*Junonia cebrene*, Trimen, Trans. Ent. Soc. London, 1870, p. 353.

♂. Monbuttu; ♂ ♀. Wadelai, 27th January, 5th February, 1887.

## 32. JUNONIA BOÖPIS.

*Junonia boöpis*, Trimen, Trans. Ent. Soc. London, 1879, p. 331.

♂. Stazione Bauri, September; ♀. Kangasi, 18th November, 1883; Monbuttu.

Mr. Trimen appears to me to have been unfortunate in defining the distinctive characters between this form and *J. orithyia*; so far as I can judge, he must have had either the Malayan *J. wallacei* or the Javan *J. ocyale* before him when making his comparison. *The width of the subapical bar on the primaries* is very variable; indeed it varies quite one third in the three examples above enumerated: *the adjacent yellow markings* also vary not a little; *the black streak* intersecting the lower part of the bar between the two ocelli is wanting in *J. wallacei*, slightly indicated in *J. ocyale* and *J. orithyia*, rather stronger in the Indian *J. swinhoei*, still stronger in the Australian *J. albicincta*, strongest in *J. here* and *J. boöpis*, but it is not absolutely constant; *the blue of the hind wings* is slightly more restricted than in any of the other forms, and this is, I think, a reliable character, but *the tint* is variable in all the forms, and therefore is valueless as a distinctive character; *the colour of the white spots* is also untrustworthy, but *the border of the secondaries* in all our specimens is greyish, especially in male examples, hardly a trace of white appearing between the black lines in specimens of this sex; indeed, the hind marginal striæ hardly merit the term "whitish" used in Mr. Trimen's description. The example figured on his plate seems unusually large for a male, and the form of its primaries is that of a female; but for Mr. Trimen's declaration that it is a male, I should have suspected it to be hermaphrodite. The colouring of the under surface in typical *J. orithyia*, from China, is browner (more argillaceous, in fact) than in any of the allied forms. I would therefore define *J. boöpis* as differing from *J. orithyia* in the four following characters:—

1. Subapical white bar of primaries, always in the male and

generally in the female, crossed by black veins as in *J. here* and *J. albicincta*.

2. Blue area of secondaries in the male more restricted towards the costal margin.

3. Hind marginal pale striæ in the male grey instead of pure white or bone-white.

4. Under-surface coloration decidedly paler, almost as pale as in *J. here* and *J. swinhoei*.

I have made the above observations because I believe *J. loöpis* to be a good species, and because I feel satisfied that in the present instance my usually most reliable friend has failed, from want of sufficient material, to indicate its real distinctive characters.

### 33. JUNONIA INFRACTA, sp. n.

Allied to *J. sophia*; the males of the same colours, only slightly redder above; the female before me white instead of fulvous; the yellow belt immediately beyond the basal area of primaries unbroken, forming a regular curved band, divided by the nervures; in the female the basal area is black; on the under surface the black-edged brown oblique band halfway between the cell and apex of primaries is considerably narrower than in *J. sophia*; and the angular band, which in that species runs from the inferior angle of the cell to the external angle (partly bounding the whitish postmedian patch), is absent; in other respects the two species are almost identical. Expanse of wings, ♂ 45 millim., ♀ 50 millim.

♂. Tobbo, 22nd May, Védada, 16th June, 1883. ♀. Forests of Tiveta, Kilima-njaro, March 1885 (*Bishop Hannington*).

Speaking of the white variety of the male of *J. sophia*, which looks like a small *Panopea lucretia*, Mr. Trimen calls attention to the fact that whilst M. Oberthür mentions it, "he does not say whether the variety in question obtains in the female as well as in the male." The only female of the allied *J. infracta* in our possession being black and white, it is highly probable that a similar form of the female occurs in *J. sophia*; so far as my experience goes, melanism is much commoner in the female than in the male sex.

### 34. JUNONIA AMESTRIS.

*Papilio amestris*, Drury, Ill. Ex. Ent. iii. pl. 20. figs. 3, 4 (1782).

Stazione Gadda, 14th and 16th January, 1884.

Seven examples of this pretty species were obtained, exhibiting very little variation in colouring and none in pattern.

### 35. JUNONIA CLOANTHA.

*Papilio cloantha*, Pap. Exot. iv. pl. 338. A, B (1782).

Wadelai, 5th and 12th March, 1887.

### 36. JUNONIA CUAMA.

*Junonia cuama*, Hewitson, Exot. Butt. iii. *Jun.* pl. 1. figs. 4, 5 (1864).

Wadelai, 27th January, 1887.



## 37. JUNONIA MICROMERA.

*Junonia micromera*, Butler, Ann. Nat. Hist. 4th ser. xviii. p. 482 (1876).

♂ ♀. Wadelai, 8th April, 1887.

Originally described from Abyssinian examples.

## 38. JUNONIA PELARGA.

*Papilio pelarga*, Fabricius, Syst. Ent, p. 513. n. 296 (1775).

♂. Kangasi, 21st November, 1883; ♀. Wadelai, 27th January, 1887.

## 39. JUNONIA GALAMI.

*Vanessa galami*, Boisduval, Faune Ent. de Madag. p. 46 (1833).

♂. Kangasi, 20th November, 1883.

## 40. JUNONIA TEREA.

*Papilio terea*, Drury, Ill. Exot. Ent. ii. pl. 18. figs. 3, 4 (1773).

♂. Védada, 16th June; Kangasi, 23rd July; Stazione Bauri, September 1883; ♀. Fóda, 28th October, 1885.

## 41. JUNONIA CHORIMENE.

*Vanessa chorimene*, Guériu, Icon. Règne Anim., Ins. texte, p. 476 (1844).

♀. Fóda, 27th October, 1885; ♂ ♀. Wadelai, 8th and 9th April, 1887.

## 42. PROTOGONIOMORPHA ANACARDII.

*Papilio anacardii*, Linn. Mus. Lud. Ulr. p. 236 (1764).

♂. Monbuttu, July or August.

## 43. ATELLA COLUMBINA.

*Papilio columbina*, Cramer, Pap. Exot. iii. pl. 238. A, B (1782).

♂. Stazione Gadda, 6th January, 1886.

One headless example.

## 44. HYPANIS ILITHYIA.

*Papilio ilithyia*, Drury, Ill. Exot. Ent. ii. pl. 17. figs. 1, 2 (1773).

♂. Wadelai, 24th January, 1887.

## 45. HYPANIS GOETZIUS.

*Papilio goetzius*, Herbst, Natursyst. Schmett. ix. pl. 258. figs. 1-4 (1798).

♀. Fóda, 20th October, 1885; ♂. Wadelai, 8th April, 1887.

It is difficult to comprehend the reluctance of lepidopterists to recognize the species of this genus; they are better defined than any of the species of *Melitæa*, and therefore far more easy to distinguish. The present species is the Western and Eastern form of the more Southern *H. acheloia*.

## 46. NEPTIS AGATHA.

*Papilio agatha*, Cramer, Pap. Exot. iv. pl. 327. A, B (1782).

Gaynese Tambu (Sandel), 15th June; Kangasi, 17th July, 14th and 20th November, 1883; Stazione Gadda, 16th January, 1884; Fóda, 22nd, 27th, and 31st October, 3rd, 4th, and 26th November, 1885; Wadelai, 12th and 20th January, and 31st March, 1887.

## 47. NEPTIS MARPESSA.

*Neptis marpessa*, Hopffer, in Peters's Reise n. Mo-samb., Ins. p. 383, pl. xxiv. figs. 9, 10 (1862).

Fóda, 20th October, 1883.

The allied *N. saclava* is intermediate between *N. marpessa* and *N. nemetes*, the figure by Chenu being, however, too inaccurate to show this; the larger spots of primaries are wider and whiter, and united at their opposed angles; the band across the secondaries is also slightly wider and of a pure white colour. I cannot find any additional markings in *N. marpessa* such as are described by Hopffer and Trimen, all the white spots in *N. marpessa* from Natal, Angola, and Abyssinia being represented in the three examples of *N. saclava* labelled Madagascar in the Hewitson cabinet; the white spots of the zigzag discal series and of the submarginal series are, nevertheless, more prominent in *N. marpessa*.

## ACRÆINÆ.

## 48. TELCHINIA BONASIA.

*Papilio bonasia*, Fabricius, Syst. Ent. p. 464. n. 96 (1775).

Kangasi, 17th July, 1883; Monbuttu in July and August.

## 49. TELCHINIA VINIDIA.

*Acræa vinidia*, Hewitson, Ent. Month. Mag. xi. p. 130 (1874); Exot. Butt. v. *Acr.* pl. 7. figs. 45, 46 (1875).

Kangasi, 17th July, 1883; Ladó, 17th August, 1884; Fóda, 20th November, 1885; Monbuttu, July and August.

## 50. TELCHINIA EPONINA.

*Papilio eponina*, Cramer, Pap. Exot. iii. pl. 268. A, B (1782).

Tobbo, 22nd May; Kangasi, 14th, 17th, 20th, and 23rd July, 1883; Fóda, 17th and 20th November, 1885; Monbuttu in July and August; Wadelai, 12th, 13th, and 20th January; 16th and 29th March, 1887.

## 51. TELCHINIA LYCIA.

*Papilio lycia*, Fabricius, Syst. Ent. p. 464. n. 94 (1775).

Ladó, 15th November, 1883, 17th August, 1884; Fóda, 3rd and 14th November, 1885.

Var. Resembling *T. szanzini*, excepting that there is a large diffused white patch on the secondaries.

Fóda, 23rd October, 1885.

## Var. T. SGANZINI.

*Acræa sganzini*, Boisduval, Faune Madag. p. 34, pl. 6. figs. 6, 7 (1833).

Kangasi, 23rd July, 1883; Ladó, 17th August, 1884; Fóda, 27th and 28th October, 1885; Monbuttu.

Var. Entirely fulvous, without the white subapical band or black apex of *T. sganzini*.

Fóda, 27th October and 15th November, 1885.

One of the examples of the typical white form has the primaries suffused with blackish.

## 52. TELCHINIA CEPHEUS.

*Papilio cepheus*, Linn. Mus. Lud. Ulr. p. 252 (1764).

♂ ♀. Kangasi, 17th, 20th, 22nd, 23rd, and 24th July, 1883; Monbuttu in July and August.

## 53. TELCHINIA STENOBEA, var.

*Acræa stenobea*, Wallengren, Wien. ent. Mon. iv. p. 35. n. 9 (1860).

Wadelai, 9th March and 9th April, 1887.

## 54. GNESIA MENIPPE.

*Papilio menippe*, Drury, Ill. Ex. Ent. iii. pl. 13. figs. 3, 4 (1782).

♂. Kangasi, 23rd July, 1883; ♀. Monbuttu.

## 55. GNESIA PERENNA.

*Acræa perenna*, Doubleday and Hewitson, Gen. Diurn. Lep. pl. 19. fig. 4 (1848).

♂. Kangasi, 24th July, 1883; Moubuttu.

## 56. GNESIA PSEUDEGINA, var.

*Acræa pseudegina*, Westwood in Gen. Diurn. Lep. p. 531 (1852).

♂. Kangasi, 17th July, 1883; ♀. Wadelai, 31st March, 1887.

The two specimens obtained, and especially that taken in July, have the basal three-fifths of primaries suffused with tawny.

## 57. ACRÆA NEOBULE.

*Acræa neobule*, Doubleday & Hewitson, Gen. Diurn. Lep. pl. 19. fig. 3 (1848).

♂. Kangasi, 23rd July, 1883.

## 58. ACRÆA INSIGNIS.

*Acræa insignis*, Distant, P. Z. S. 1880, p. 184, pl. xix. fig. 6.

♂. Kangasi, 28th July, 1883.

## 59. PLANEMA LYCOA.

*Acræa lycoa*, Godart, Enc. Méth. ix. p. 239. n. 27 (1819).

♀. Kangasi, 5th July, 1883.

## ERYCINIDÆ.

## 60. ABISARA GERONTES.

*Papilio gerontes*, Fabricius, Spec. Ins. ii. p. 117. n. 524 (1781).  
Monbuttu, in July or August.

## LYCÆNIDÆ.

## 61. TINGRA SANGUINEA.

*Pentila acræa*, var. *sanguinea*, Plötz, Stett. ent. Zeit. xli. p. 198 (1880).

*Liptena sanguinea*, Smith & Kirby, Rhop. Exot. i. p. 2, *Lipt.* pl. 1. figs. 1-4 (1887).

♀. Kangasi, 27th July, 1883.

## 62. TINGRA ACRÆA.

*Pentila acræa*, Westwood, Gen. Diurn. Lep. p. 504. n. 3, pl. 77. fig. 6 (avowedly incorrectly figured as a *Liptena*)<sup>1</sup>.

♀. Monbuttu, in July or August.

## 63. TINGRA MYLOTHRINA, sp. n.

Looks like a small *Mylothris*, but is allied to *T. abraxas*. White, slightly opaline and tinted with sulphur-yellow; base of wings orange; primaries with the base of costa blackish-speckled; a broad apical patch commencing at external third of costal margin and terminating below third median branch, but continued as a tapering border by two decreasing oval marginal spots, greyish brown; fringe spotted between all the nervures with white; secondaries with five large and one small marginal brown spots: wings below white, orange at base, primaries with nine marginal spots commencing from the second subcostal branch; secondaries with six marginal spots. Expanse of wings 39 millim.

Monbuttu.

Only one example of this very distinct species was obtained, its body is somewhat injured, but it appears to be normal in colouring.

## 64. PENTILA UNDULARIS.

*Pentila undularis*, Westwood, Gen. Diurn. Lep. p. 504. n. 1 (avowed type of the genus *Pentila*).

*Liptena undularis*, Hewitson, Exot. Butt. iii. *Pent. & Lipt.* fig. 7 (1866).

Stazione Bauri, September 1883.

As elsewhere stated, *P. undularis* was originally named by Boisduval, entered as *Pentila undularis* by Doubleday in his Museum List, and was stated to be the type of the genus by Westwood (who first characterized *Pentila*). There can be no doubt whatever that

<sup>1</sup> To give the lettering of a plate more authority than the text which corrects it seems to me utterly ridiculous; the lettering of a plate may be tampered with by a lithographic writer, and if an author has no power to point out the error, he may be quoted as the originator of the most absurd nonsense-name.

the characters ascribed to *Pentila* were formulated from an examination of this species. It follows therefore that to accept *Tingra tropicalis* of Boisduval (a species unknown to Professor Westwood when he characterized *Pentila*) as the type of the latter is a proceeding which would render both descriptions of genera and indications of their types utterly valueless.

65. LACHNOCNEMA D'URBANI.

*Lachnocnema d'urbani*, Trimen, South Afr. Butt. ii. p. 236. n. 238 (1887).

Védada, 16th June, 1883.

66. POLYOMMATUS BÆTICUS.

*Papilio baticus*, Linn. Syst. Nat. i. 2, p. 789, n. 226 (1767).

♂. Wadelai, 16th January, 1887.

67. CATOCHRYSOPS ASOPUS.

*Lycæna asopus*, Hopffer, Ber. Verh. Ak. Berl. 1855, p. 642. n. 22; Peters's Reise, Zool. v. p. 410, pl. 26. figs. 13-15 (1862).

Stazione Bauri, September 1883; Wadelai, 20th January, 19th and 27th March, 1887.

68. CATOCHRYSOPS OSIRIS.

*Lycæna osiris*, Hopffer, Ber. Verh. Ak. Berl. 1855, p. 642. n. 21; Peters's Reise, Zool. v. p. 409, pl. 26. figs. 11, 12 (1862).

♂. Wadelai, 16th January and 3rd April, 1887.

69. CATOCHRYSOPS CYCLOPTERIS.

*Lampides cyclopteris*, Butler, Ann. & Mag. Nat. Hist. ser. 4, vol. xviii. p. 483 (1876).

♀. Nedada, 16th June; ♂. Tomaja, 6th August, 1883.

Originally described from Abyssinia.

70. TARUCUS PULCHER.

*Lycæna pulchra*, Murray, Trans. Ent. Soc. 1874, p. 524, pl. 10. figs. 7, 8.

♂. Fóda, 1st November, 1885.

Seasonal form?

About a sixth smaller, of a paler (greyish lilac) tint above, the female with more white on upper surface; markings below paler. (3 males and 1 female.)

Wadelai, 27th January, 5th February, and 10th March, 1887.

Though very distinct in general appearance from the typical form, the pattern of the under surface corresponds with that of *T. pulcher*, of which I think it is probably the early brood.

71. AZANUS MORIQUA.

*Lycæna moriqua*, Wallengren, Lep. Rhop. Caffr. p. 39. n. 9 (1857).

♂ ♀. Wadelai, 16th and 24th January, 1887.

72. *CASTALIUS ISIS*.

*Papilio isis*, Drury, Ill. Exot. Ent. ii. pl. 3. figs. 4, 5 (1773).

♂. Stazione Bauri, September 1883; Monbuttu, July and August.

73. *ZIZERA KNYSNA*, var.

*Lycæna knysna*, Trimen, Trans. Ent. Soc. ser. iii. vol. i. p. 282 (1862).

♂. Wadelai, 13th January, 1887.

A worn specimen, differing from the normal type in its greyer coloration, with silvery-blue scaling on the basal three-fourths, but most distinctly towards the base.

74. *LYCÆNESTHES PRINCEPS*.

*Lycænesthes princeps*, Butler, Ann. & Mag. Nat. Hist. ser. 4, vol. xviii. p. 484 (1876).

♀. Tobbo, 22nd May, 1883.

Originally described from Abyssinian examples.

75. *HYREUS LINGEUS*.

*Papilio lingeus*, Cramer, Pap. Exot. iv. pl. 379. F, G (1782).

♂. Stazione Bauri, September 1883.

76. *HYPOLYCÆNA (TATURA) PACHALICA*, sp. n.

Allied to *H. philippus*. Wings above deep rufous-brown, glossed with purple in male examples; with a black marginal line; primaries with orange basicostal margin, and with greyish fringe, traversed by a darker central line; secondaries with the usual black spots bounded by orange lunules above the tails, the anal spot flecked with pale metallic green; a simple black spot between them, an abbreviated submarginal line, a line at the base of the fringe, the fringe, and tips of the tails white; body black, the head varied with tawny scales: under surface of wings pale stone-grey; a short bar at the end of each discoidal cell, a band across the disk, and a submarginal stripe bright reddish orange, edged with black and margined with whitish; a white submarginal line, separated by an orange line from the black marginal line; secondaries with an orange subcostal spot at basal third, the discal band elbowed and interrupted at the submedian vein, a short orange marginal band above the abdominal sinus; a dark grey band (also, less strongly indicated, on the primaries) tinted with orange towards costa, between the submarginal and marginal stripes; præcandal spots nearly as above, but the anal spot flecked with metallic leaden scales, the intermediate spot wanting; body below white, the legs barred with black. Expanse of wings 23-25 millim.

2♂ & 1♀. Wadelai, 29th March, 1887.

A very distinct and pretty little species.

A worn and broken female example of an apparently new *Virachola*, allied to *V. anta*, was obtained at Stazione Bauri in September 1883.

## 77. ZERITIS HARPAX, var.

*Papilio harpax*, Fabricius, Syst. Ent. App. p. 809 (1775).

♂ ♀. Wadelai, 9th April, 1887.

The pair obtained differs from the normal type in its superior size, but does not exhibit any other distinctive character.

## 78. MYRINA SILENUS.

*Papilio silenus*, Fabricius, Syst. Ent. p. 531. n. 378 (1775).

♀. Wadelai, 16th January, 1887.

## PAPILIONIDÆ.

## PIERINÆ.

## 79. MYLOTHRIS CHLORIS.

*Papilio chloris*, Fabricius, Syst. Ent. p. 473. n. 129 (1775).

♀. Kangasi, 13th November, 1883; ♂. Stazione Gadda, 13th and 14th January, 1884; Monbuttu, in July or August.

## 80. MYLOTHRIS CLARISSA, sp. n.

♀. Primaries as in the male of *M. chloris*, excepting that the apical patch is cut rather more obliquely on its inner edge, and that the marginal spots are both well-defined; secondaries creamy ochreous, with a broad grey-brown external border, considerably narrower, however, than in *M. chloris*, and with nearly rectangular inner edge: under surface much like the male of *M. chloris*, excepting that the border of secondaries has a nearly rectangular inner edge, and extends further along the costal margin; the primaries, however, are more widely orange at base, and the subapical area is decidedly yellower. Expanse of wings 66 millim.

Wadelai, 28th March, 1887.

## 81. MYLOTHRIS POPPEA.

*Papilio poppea*, Cramer, Pap. Exot. ii. pl. 110. D (1779).

♂. Monbuttu, in July or August.

Only one very much shattered male was obtained.

## 82. NYCHITONA SYLVICOLA.

*Leucophasia sylvicola*, Boisduval, Faune Ent. de Madag. p. 20 (1833).

Fóda, 22nd October, 1885.

## 83. TERIAS BRIGITTA.

*Papilio brigitta*, Cramer, Pap. Exot. iv. pl. 331. B, C (1782).

♂ ♀. Wadelai, 11th, 13th, and 20th January, 15th and 16th March, 1887.

84. *TERIAS ZOE*.

*Terias zoe*, Hopffer, Ber. Verh. Ak. Berl. 1855, p. 640. n. 5; Peters's Reise, Zool. v. p. 369, pl. 23. figs. 10, 11 (1862).

♂. "Stat. Mundú," 1st June, 1883.

One fragmentary example only of this species was obtained.

85. *TERIAS REGULARIS*.

*Terias regularis*, Butler, Ann. & Mag. Nat. Hist. ser. 4, vol. xviii. p. 486 (1876).

Kangasi, 17th July, and October; Stazione Bauri, September 1883; Fóda, 20th, 22nd, 27th, and 28th October, 1st November, 1885; Monbuttu, in July and August.

Originally described from Abyssinian examples.

86. *TERIAS SOLIFERA*.

*Terias solifera*, Butler, Ann. & Mag. Nat. Hist. ser. 4, vol. xv. p. 396. n. 3 (1875).

♂. Tobbo, 21st May, 1883.

The type was from the Congo.

87. *TERIAS ORIENTIS*, sp. n.

♂. Above gamboge-yellow, primaries with black costal margin; outer border black-brown, wide at costa, whence it decreases in width to external angle; in form it somewhat resembles the border of *T. senegalensis*, but it is wider on the costa, and terminates in an acute angle as in *T. dentilimbata*; the secondaries have a narrow sinuated black-brown outer margin, often broken up into a mere marginal series of spots: the under surface is lemon-yellow, the ordinary markings ill-defined or wanting. Expanse of wings 42 millim.

♀. Pale sulphur-yellow, either spotless below or with the ordinary markings badly defined. Expanse of wings 40-45 millim.

♀. Tobbo, 21st May, 1883; ♂. Wadelai, 31st March, 1887.

We have ten examples of this species in the Museum series from Upper Egypt, the White Nile, Abyssinia, and the Victoria Nyanza.

88. *TERIAS BISINUATA*.

*Terias bisinuata*, Butler, Ann. & Mag. Nat. Hist. ser. 4, vol. xviii. p. 485 (1876).

Fóda, ♀ 27th October, ♂ 1st November, 1885.

Originally described from Abyssinia.

89. *TERIAS BOISDUVALIANA*.

*Terias boisduvaliana*, Mabilie in Grandidier's Hist. Madag. vol. i. p. 253. n. 5, pl. xxxii. figs. 4, 4a, & 5.

♂. Stazione Bauri, September 1883; Monbuttu in July or August.

Two fine specimens and one less perfect were obtained. The species most nearly resembles *T. brenda* of Doubleday, but has a rather wider border to the primaries above; below it is a little



clearer in colour and the markings are almost wholly obliterated. The figures in M. Grandidier's work are taken from rather small examples; but this form of *Terias* is very variable in size, our smallest male example expands 28 millim. and our largest 55 millim.

Var. ? The external border of primaries wider and more quadrate at apex, narrower or obliterated at external angle. Expanse of wings, ♂ and ♀ 37 millim.

♂. Stazione Bauri, September 1883; ♀. Ladó, 20th August, 1884.

Now that the text of Monsieur Grandidier's work has appeared I much regret to find that the serious errors, which I pointed out in my paper on Lepidoptera from Somali-land (P. Z. S. 1885, pp. 762, 767, 768, 769), have not only not been corrected, but, on the contrary, have been insisted on. Now, whilst no great blame attaches to a Lepidopterist who accepts the statement of his collector as to the capture of a series of Arabian species in Madagascar, he injures his reputation when he persists in associating as male and female the males of different species, as M. Mabille has done in the case of the males of *Charaxes antamboulou* and *C. cowani*; that both are males, the fidelity of the illustrations shows at a glance, apart from the fact that the sexes of both are in the Museum collection: the coloration and pattern of the under surface in these two species differs more than in the sexes of any *Charaxes* known to me; in the true sexes there is no such difference.

#### 90. TERACOLUS AURIGINEUS.

*Teracolus aurigineus*, Butler, Ann. & Mag. Nat. Hist. ser. 5, vol. xii. p. 103 (1883).

♂ ♀. Wadclai, 16th, 28th, 29th, and 31st March, and 8th April 1887.

Originally described from the Victoria Nyanza and subsequently received from Kilima-njaro; the examples from the latter locality have the veins of the wings blacker and the black bands across the wings slightly broader than in the type.

#### 91. TERACOLUS PROTOMEDIA.

*Pontia protomedia*, Klug, Symb. Phys. pl. 8. figs. 13, 14 (1829).

♂ ♀. Wadelai, 9th, 16th, 19th, and 31st March, 1887.

Occurs in Upper Egypt, Nubia, Aden, and Somali-land.

#### 92. TERACOLUS PUNICEUS, sp. n.

♂. Allied to *T. hetæra*, but smaller, the magenta-coloured apical patch triangular, terminating at the third median branch; the blackish border narrower; a minute black dot at end of cell; the secondaries immaculate: under surface of primaries white with cream-coloured apical patch, of secondaries cream-coloured, crossed beyond the middle from costal to third median branch by an oblique interrupted narrow brown line, beyond which there is a single spot on second median interspace. Expanse of wings 6.4 millim.

Wadelai, 8th April, 1887.

The female is in the Museum from the Victoria Nyanza, and I formerly supposed it to be that sex of *T. hetæra*; it is somewhat like a large edition of *T. jobina* ♀, but has a few scales of magenta-red in each of the white spots towards apex of primaries. This species should stand between *T. eunoma* and *T. hetæra*.

93. *TERACOLUS PHLEGYAS*.

*Anthocharis phlegyas*, Butler, P. Z. S. 1865, p. 431. n. 3, pl. 25. figs. 3, 3a.

♂. Wadelai, 16th January, 1887.

94. *TERACOLUS BACCHUS*, sp. n.

♂. Size of *T. ione* or slightly smaller. Wings above white; primaries with narrow black costal margin; the base sprinkled with black scales; apical area blue-black, with dentate-sinuate inner edge, and crossed by a wide belt of brilliant changeable purple (wider and bluer than in *T. ione*); the spot at end of cell scarcely visible, reduced to two or three scales; secondaries white, with blackish veins terminating in minute black spots on the outer margin. Wings below white, the apex of primaries and whole of secondaries very pale sulphur-yellow, crossed by well-defined black veins terminating in small subconfluent black spots on the outer margin; costal margin of primaries black; a black dot at the end of the cell; secondaries with the basal half of the costal margin yellow; a black transverse dash from costal to subcostal vein, forming the commencement of an ill-defined oblique stripe, indicated by scattered black scales as far as the third median branch. Expanse of wings 57 millim.

♀. White above; the base rather broadly irrorated with blackish scales; primaries with the costal margin black; a broad external blackish border crossed by black veins, widest at costa, gradually diminishing in width from costa to first median branch, to which point it is internally dentate-sinuate and traversed by six white spots in an arched series, narrow and internally widely sinuated from first median branch to submedian vein; a black spot at the end of the cell; a transverse blackish spot at external third of interno-median area; secondaries with a marginal series of large subconfluent blackish spots crossed by black veins; a blackish subapical oblique stripe from costa, connected with the macular border by black veins; body quite normal. Primaries below white, the costa and apical area pale yellow; veins towards outer margin dark brown; a sub-apical series of angulated brown dashes; a black spot at the end of the cell; two small black spots on interoo-median area and three brown triangular spots at end of first median branch, interno-median fold, and submedian vein; secondaries pale yellow, base of costal margin and a spot at the end of the cell bright yellow; veins, an elbowed stripe beyond the middle, and the fringe excepting at the extremity of the internervular folds, dark brown; body below white. Expanse of wings 55 millim.

♀. Lado, 20th August, 1884; ♂. Wadelai, 27th January, 1887.

This species is readily distinguished from all its allies by the well-defined dark-coloured veins on the under surface.

95. *TERACOLUS PHŒNIUS*.

♂. *Teracolus phœnius*, Butler, Ann. & Mag. Nat. Hist. ser. 4, vol. xviii. p. 488 (1876).

♂ ♀. Wadelai, 8th December, 1885; 13th and 16th January, 31st March, and 8th April, 1887.

The female originally described as belonging to this species proves to be the pale form of the female of *T. anteuropompe*; the true female of *T. phœnius* is of a pale sulphur-yellow colour and is much less heavily suffused with grey at the base than in *T. anteuropompe*; the veins on the apical area are also much less prominent and the discocellular spot is smaller; below, the wings are also sulphur-yellow, the primaries only being crossed by an oblique white belt; the veins towards the outer margin are black, widening towards outer margin in the characteristic manner noticeable in the male.

It is always a mistake to conclude too hastily that Indian and African species are identical; now that the sexes of this species are finally determined, it becomes evident that Col. Swinhoe's decision as to the identity of *T. phœnius* with *T. dirus* of Sind is incorrect. The female, which I at first supposed to be that sex of *T. phœnius*, does indeed bear a considerable superficial resemblance to some of the pale females of *T. dirus*, just as the many pale females of *Colias* greatly resemble one another; but when we compare the two red-tipped females of *T. anteuropompe* and *dirus*, we see at a glance that they are utterly distinct:—the former has two-fifths of the wing red, crossed by black veins and interrupted by an angular series of small black spots; the latter has the red area much more confined, usually only forming an oblique band, but occasionally extending a short distance beyond the black macular bar; the outer margin is also heavily bordered with black.

96. *TERACOLUS PSEUDACASTE*.

*Teracolus pseudacaste*, Butler, P. Z. S. 1876, p. 156. n. 103, pl. 6. fig. 11.

♂. Wadelai, 16th January and 9th March, 1887.

97. *TERACOLUS ANTEVIPPE*.

*Anthocharis antevippe*, Boisduval, Sp. Gén. Lép. i. p. 572. n. 18, pl. 18. fig. 3 (1836).

♂. Wadelai, 19th March, 1887.

98. *TERACOLUS HELLE*.

*Teracolus helle*, Butler, P. Z. S. 1876, p. 149 n. 75.

♀. Fóda, 5th November, 1885; ♂. Wadelai, 31st March, 1887.

99. *TERACOLUS EIONE*.

*Anthocharis eione*, Boisduval, Sp. Gén. Lép. i. p. 578. n. 29 (1836).

♀. Wadelai, 31st March, 1887.

## 100. TERACOLUS EVARNE.

*Pontia evarne*, Klug, Symb. Phys. pl. 6. figs. 1-4 (1829).

♂. Wadelai, 13th January; ♀. 28th March, 1887.

There are evidently large and small forms of this species, as in the allied *T. phillipsii* from Somali-land: hitherto we have received male examples equal in size to that figured by Klug; the male now received is much smaller and has lost the marginal spots on secondaries; on the other hand, the female figured by Klug is small and evidently belongs to our small male, whilst the female just received is large and heavily marked and belongs to Klug's male. It is probable that the small type is the winter form of the species; but, after all, conjectures are valueless in these questions.

## 101. CATOPSILO PYRENE.

*Colias pyrene*, Swainson, Zool. Ill. i. pl. 51 (1820-1821).

♂ ♀. Kangasi, 17th, 20th, 23rd, 24th, and 27th July, 2nd October; Stazione Bauri, September 1883; Stazione Gadda, 17th, 26th, 27th, and 28th January, 10th February and 6th June; Lado, 20th August, 1884; F6da, 27th October, 1885; Monbuttu in July and August; Wadelai, 9th March, 1887.

## 102. GLUTOPHRISSE CONTRACTA, sp. n.

Intermediate in some respects between *G. saba* of West Africa and *G. malatha* of Madagascar. The male differs from both species in the slightly narrower black border to the primaries above, the creamy colour of the apical area and secondaries, and total absence of all black spots on the under surface; the female differs from both in having the white belt of primaries above contracted to a narrow oblique spot at the end of the cell, though from the median vein to the inner margin it remains as wide as usual; on the under surface the yellow colour at the base is duller and more saffron-tinted; the apex is as white as in the Madagascar form. Expanse of wings, ♂ 56-58 millim., ♀ 49-58 millim.

Wadelai, ♂ 13th, 16th, 20th, and 27th January; ♀ 19th March; ♂ ♀ 8th April, 1887.

Nine examples were obtained; the male most nearly resembles M. Mabille's figure of *G. epaphia* ♂, a form which I have never seen from Madagascar. The true *G. epaphia* is the *Pieris matuta* of Doubleday and is the male of *G. saba*. The male of *G. malatha* (the Madagascar form) has similar black spots below, but is yellower in tint; it does not agree with M. Mabille's narrow-bordered males.

## 103. PINACOPTERYX PIGEAE.

*Pieris pigea*, Boisduval, Sp. Gén. Lép. i. p. 523. n. 134 (1836).

♂ ♀. F6da, 20th October and 25th November, 1885.

The female is a singularly beautiful example, the whole of the ground-colour being of a bright sulphur-yellow.

## 104. PINACOPTERYX ORTYGNA.

*Pieris ortygna*, Hübner, Zutr. exot. Schmett. figs. 985, 986 (1832).

♂. Fódá, 23rd, 28th, and 31st October; 20th and 23rd November, 1885.

The female of this species is unknown to me, but there is no doubt that it somewhat resembles the female of *Ganoris rapæ*. Mr. Doubleday identified this species with the *Pieris orbona* of Boisduval's 'Lepidoptera of Madagascar,' and thus led me into error: the latter is a *Glutophrissa*.

## 105. PHRISSURA SYLVIA, var.

*Papilio sylvia*, Fabricius, Syst. Ent. p. 470. n. 115 (1775).

♂. Kangasi, 20th November, 1883; Stazione Gadda, 31st January, 1884; Monbuttú in July and August.

## 106. BELENOIS INSTABILIS, sp. n.

A very variable species, allied to *B. calypso*; much smaller. The male above milk-white; primaries with narrow costal margin black excepting at base where it is grey; a black wedge-shaped costal dash extending in a thin line along the upper discocellular veinlet; a large black spot on the lower discocellular; apical area and external border black, wider than in *B. calypso*, but with the same white spots upon it: secondaries with a minute black dash on the lower discocellular; an arched series of black spots, the first three in an oblique subapical series, the last three submarginal, connected by a grey nebulous streak; a marginal series of six large triangular black spots, united externally by a black marginal line; body normal. Primaries below nearly as in *B. calypso*, but the subapical angulated black band more regular, not so much broken up, an additional blackish spot on the first median interspace; the apical area creamy white divided by black veins, which are less widely black-bordered than in *B. calypso*: secondaries sulphur-yellow, with brown veins terminating in triangular marginal spots; a dark brown spot at the end of the cell and seven submarginal spots: body below white. Expanse of wings 64 millim.

♀. Darker than the darkest females of *B. calypso*; resembling, in fact, the female of *B. clytie*, but without the subapical white spots, with the basal area heavily suffused with grey, and with the oblique bar at the end of the discoidal cell of primaries imperfectly separated from the broad blackish external area: on the under surface it differs from the darkest females of *B. calypso* in having the macular subapical band of the primaries widened into a broad black belt, almost touching the oblique discocellular bar, the lower submarginal spots small and the basal area yellower; the secondaries with the veins blackened from the middle outwards, the submarginal black spots united into a blackish belt, and the last five yellow marginal spots rounded and smaller. Expanse of wings 58 millim.

♂ ♀. Fódá, 23rd, 27th, and 28th October; 17th and 26th November, 1885.

Var. *a.* ♂. Slightly smaller, the black cuneiform costal dash of primaries replaced by an oblique black line; all the black markings more sharply defined; the white apical dashes narrower, the black spots of the subapical and submarginal series of secondaries smaller; below the oblique black dash at end of cell of primaries interrupted, the apical area of primaries and ground-colour of secondaries clear sulphur-yellow; the veins less distinctly black, the costa, two abdominal streaks, and the pale spots of the external border saffron-yellow. Expanse of wings 55 millim.

♀. Above with the black external area much narrower (about one half the width of the typical form), but the veins blackened from the middle; the black spots better defined, owing to their not being obscured by the wide border; the basal area also less suffused with blackish. Primaries below with narrower discocellular bar and discal belt; the veins towards apex and on secondaries less broadly black-bordered: secondaries chrome-yellow, the submarginal spots smaller and only connected by grey scales; the marginal spots of the ground-colour shaped more nearly as in *B. calypso*. Expanse of wings 55 millim.

♀. Fódá, 20th October, 1885; ♂. Wadelai, 29th March, 1887.

Var. *b.* ♂. Above with the black markings less strongly defined, the oblique discocellular line of primaries sometimes obliterated; the apical area of primaries and the ground-colour of secondaries creamy whitish, the saffron-coloured markings replaced by pale yellow; the veins only blackened at their outer extremities. Expanse of wings 57 millim.

♀. Above white, not obscured at the base; black markings nearly as in *B. calypso* ♀, but with grey-bordered white dashes on the apical area of primaries, and the marginal spots of secondaries obscured with grey towards anal angle: apical area of primaries below creamy white, the veins across it very slenderly black; the subapical black belt narrow; secondaries slightly pearly, the black spots small, the other characters as in the male. Expanse of wings 56 millim.

♂. Kangasi, 18th November, 1883; ♂ ♀. Wadelai, 16th January, 1887.

Apart from all less constant characters, the whole of the varieties of this species can be at once distinguished from *B. calypso* by the six subapical and submarginal black spots on the upper surface of the secondaries, which are perfectly defined in both sexes, by the regular and unbroken character of the subapical bar or belt on the under surface of the primaries, and by the more or less developed black borders to the veins on the under surface of the secondaries.

#### 107. BELENOIS CALYPSO, var. ?

*Papilio calypso*, Drury, Ill. Exot. Ent. ii. pl. 17. figs. 3, 4 (1773).

♂. Kangasi, 24th March, 1883.

One injured male only was obtained: we have a similar male from the Congo. It differs from typical *B. calypso* in the white

under surface of the secondaries, the costal border and an internomidian streak from the base only being saffron-yellow. Though this may perhaps be a distinct species, there is not at present sufficient material to warrant its separation on mere colour-characters apart from marking.

108. *BELENOIS DENTIGERA*, sp. n.

♂. Belongs to the *B. calypso* group; above white: the primaries with blackish costal edge; the subcostal furca widely blackish-bordered; five other blackish triangular marginal spots in a decreasing series; three widely separated greyish dots in an angular subapical series; secondaries with four small black marginal spots; thorax greyish, abdomen white. Wings below white; primaries with black costal edge, a black dot on the lower discocellular veinlet; five unequal black spots in an angular subapical series; seven black marginal spots at the extremities of the veins: secondaries very faintly rose-tinted; costal border orange on basal and apical thirds; an ill-defined orange basi-abdominal streak; a black dot at end of cell; a submarginal series of seven unequal black spots and a marginal series of six. Expanse of wings 60 millim.

Stazione Gadda, 10th February, 1884.

Only one male of this very distinct species was obtained; it comes nearest to an unnamed male in the Museum collection from Angola.

109. *BELENOIS GIDICA*.

*Pieris gidica*, Godart, Enc. Méth. ix. p. 131. n. 37 (1819).

♂. Fôda, 1st November, 1885; ♀. Wadelai, 31st March, 1887.

110. *BELENOIS SEVERINA*.

*Papilio severina*, Cramer, Pap. Exot. iv. pl. 338. G, H (1782).

111. *BELENOIS INFIDA*, sp. n.

♂. Above like *B. severina*, excepting that it is a little smaller, and has a distinct black bar, commencing with a cuneiform black costal spot, at the end of the discoidal cell of primaries; the border of secondaries narrower and interrupted by larger white spots. Below, the costal border of primaries is not yellowish, the ground-colour of the apical area is considerably browner, this border narrows abruptly from the second, instead of remaining wide to the first median branch; the secondaries have a whitish abdominal border and all the veins and the outer border are widely rufous-brown, the latter interrupted by the usual yellow spots. Expanse of wings 46 millim.

♀. Extremely variable, the primaries either pinky white or chrome-yellow with a black external border occupying from one third to more than half the wing; a broad oblique black bar across the end of the cell, connected by black veins with the outer border, or, in some examples, perfectly lost in it, a small costal spot of the ground-colour alone remaining to show the point of union; three,

two, or no subapical spots of the ground-colour, when three are present they form an oblique series; secondaries sulphur- or chrome-yellow, the external black border broad, sometimes like that of *B. severina*, excepting that it is connected with a discocellular triangular spot by black veins (median and radial), but more frequently occupying half the wing, so as entirely to obliterate the subapical costal spots; fringe spotted with white. Below always yellower than in *B. severina*, the primaries with broad black oblique bar at the end of the cell, either connected by black veins or confluent with a more or less broad external border as above, this border, however, never stops short at first median branch as in *B. severina*, but is continued to the inner margin; the secondaries below always have a wider external border than in *B. severina*, frequently almost extending to the cell, and the veins are all widely bordered with brown. Expanse of wings 50–51 millim.

♂. Wadelai, 16th January; ♀. 28th, 29th and 31st March; 8th and 9th April, 1887.

Of this well-marked species thirteen examples were collected; unfortunately, twelve of these are females, and therefore it is impossible to say whether the extraordinary variability in the width of the black border extends to the male sex; of the females no two specimens are quite alike.

This is what I understand by a variable species; many Lepidopterists confound the idea of a variety or sport with that of a fixed local form (which I regard as the only species in Lepidoptera), and this leads them into such a perplexed condition of mind that they have some difficulty in deciding as to whether a new form shall be called a new species or a variety. In Mr. Semper's recently published 'Reisen im Archipel der Philippinen,' 2nd part, p. 84, the difficulty is thus met—"105 a. var. *Euripus lucasioides*, n. sp."

#### 112. BELENOIS AGRIPPINA.

*Pieris agrippina*, Felder, Reise der Nov., Lep. ii. p. 173. n. 159 (1865).

♂ ♀. Wadelai, 13th and 16th January; 19th and 29th March; 8th April.

I doubt very much whether the distinction between this species and *B. lordaca* can be maintained, the difference (chiefly in size) appears to be more and more unsatisfactory as additional specimens are received.

#### PAPILIONINÆ.

##### 113. PAPILIO POLICENES.

*Papilio policenes*, Cramer, Pap. Exot. i. pl. 37. A, B (1776). Kangasi, 20th August, 1883; Monbuttu in July or August. Only three imperfect specimens were obtained.

##### 114. PAPILIO ANTHEUS.

*Papilio antheus*, Cramer, Pap. Exot. iii. pl. 234. B, C (1782). Stazione Gadda, 19th January, 1884.



Only one male was obtained ; the species appears to be somewhat rare.

115. *PAPILIO PYLADES*.

*Papilio pylades*, Fabricius, Ent. Syst. iii. 1, p. 34. n. 100 (1793).

Tobbo, 22nd May ; Kangasi, 27th and 29th July, 6th, 7th, 12th, 16th October, 16th, 20th, and 22nd November ; Stazione Bauri, in September 1883 ; Stazione Gadda, 17th, 19th, 26th, and 28th January, 10th February, 1884 ; Fóda, 31st October and 25th November, 1885 ; Monbuttu in July and August.

116. *PAPILIO TYNDERÆUS*.

*Papilio tynderæus*, Fabricius, Ent. Syst. iii. 1, p. 35. n. 104 (1793).

Monbuttu in July and August.

117. *PAPILIO LEONIDAS*.

*Papilio leonidas*, Fabricius, Ent. Syst. iii. 1, p. 35. n. 103 (1793).

Kangasi, 3rd November, 1883.

118. *PAPILIO RIDLEYANUS*.

*Papilio ridleyanus*, White, Ann. & Mag. Nat. Hist. xii. p. 262 (1843).

Kangasi, 20th July, 1883.

119. *PAPILIO DEMOLEUS*.

*Papilio demoleus*, Linnæus, Mus. Lud. Ulr. p. 214 (1764).

Stazione Bauri, September ; Kangasi, 20th, 24th, 25th, 29th, and 31st July, 9th October, 20th and 21st November ; Ladó, 20th December, 1883 ; Stazione Gadda, 17th and 19th January and 1st April, 1884 ; Monbuttu in July or August ; Wadelai, 16th January and 9th April, 1887.

A much-worn example of an apparently new species of *Papilio* allied to *P. cynorta* was obtained at Monbuttu ; it is unfortunately not sufficiently perfect to be worth describing.

120. *PAPILIO ERINUS*.

*Papilio erinus*, Gray, Cat. Lep. Ins. B. M. i. p. 35. n. 127 (1865).

Kangasi, 17th July and 2nd October, 1883 ; Monbuttu, in July or August.

121. *PAPILIO BROMIUS*.

*Papilio bromius*, Doubleday, Ann. & Mag. Nat. Hist. xvi. p. 176 (1845).

Stazione Bauri, September 1883 ; Stazione Gadda, 6th June, 1884 ; Monbuttu in July or August.

## 122. PAPILIO HESPERUS.

*Papilio hesperus*, Westwood, Arc. Entom. i. pl. 48 (1843).

Monbuttu in July or August.

Only one damaged example was taken.

## HESPERIIDÆ.

## 123. HESPERIA FORESTAN.

*Papilio forestan*, Cramer, Pap. Exot. iv. pl. 391. E, F (1782).

Monbuttu, in July or August.

Two fragmentary specimens.

## 124. CHAPRA MATHIAS.

*Hesperia mathias*, Fabricius, Ent. Syst. Supp. p. 433 (1798).

Kangasi, 22nd July, 1883; Wadelai, 9th April, 1887.

## 125. PARNARA INCONSPICUA.

*Hesperia inconspicua*, Bertoloni, Mem. Acc. Bon. 1849, p. 15.

Wadelai, 3rd and 8th April, 1887.

## 126. GOMALIA ELMA.

*Pyrgus elma*, Trimen, Trans. Ent. Soc. ser. 3, vol. i. p. 288 (1862).

*Gomelia albofasciata*, Moore, P. Z. S. 1879, p. 144.

Wadelai, 8th April, 1887.

## 127. PARDALEODES EDIPUS.

*Papilio edipus*, Cramer, Pap. Exot. iv. pl. 366. E, F (1782).

♀. Védada, 16th June, 1883.

## 128. THANAOS DJÆLÆLÆ.

*Pterygospidea djælælæ*, Wallengren, Lep. Rhop. Caffr. p. 54 (1857).

♀. Wadelai, 29th and 31st March, 8th April, 1887.

The females show no trace of the ochraceous colouring on the under surface which characterizes the male specimens.

## HETEROCERA.

## AGARISTIDÆ.

## 129. EUSEMIA EUPHEMIA.

*Phalæna euphemia*, Cramer, Pap. Exot. iv. pl. 345. A (1782).

Wadelai, 4th January and 31st March, 1887.

## 130. ÆGOCERA TRICOLOR.

*Ægocera tricolor*, Druce, Ent. Month. Mag. xx. p. 155 (1883).

Wadelai, ♀, 16th March; ♂, 3rd April, 1887.

131. *ÆGOCERA MAGNA*.

*Ægocera magna*, Walker, Cat. Lep. Het. i. p. 56. n. 3 (1854).  
Kangasi, 29th July, 1883; Wadelai, 8th and 28th March, 1887.

132. *ÆGOCERA RECTILINEA*.

*Ægocera rectilinea*, Boisduval, Sp. Gén. Lép. i. pl. 14. fig. 5 (1836).

Wadelai, 9th and 11th March and 8th April, 1887.

## ARCTIIDÆ.

133. *EUCHROMIA FULVIDA*.

*Euchromia fulvida*, Butler, Trans. Ent. Soc. 1888, pl. iv. fig. 9.  
*Euchromia sperchius* (part.), Walker, Cat. Lep. Het. i. p. 220.  
n. 24 (1854).

Kangasi, 27th July, 1883; Monbuttu in July and August.

134. *ALPENUS ÆQUALIS*.

*Alpenus æqualis*, Walker, Cat. Lep. Het. ii. p. 686. n. 1 (1855).  
Wadelai, 11th March, 1887.

135. *TÆNIOPYGA SYLVINA*.

*Phalæna-Noctua sylvina*, Stoll, Suppl. Cramer, Pap. Exot. pl. 40.  
fig. 4 (1791).

♀. Stazione Gadda, 23rd April, 1884.

136. *PLERETES PACTOLICUS*, sp. n.

Bright orange, with black-bordered steel-blue markings; primaries with two subconfluent spots placed obliquely close to the base (in the female they are confluent and form a short oblique bar); three nearly straight bands, nearly equidistant on the costal margin, crossing the wing to inner margin, the outer edges of these bands are slightly convex, and the outermost band tapers (in the male especially) towards its inferior extremity; a short subapical bar or blotch, and two large spots, the upper one discal, ovate or pyriform, the lower quadrate or triangular and placed at external angle; a large apical spot and five or six (in the female) marginal spots; the apical and three first marginal spots confluent in the female: secondaries of male with a small costal spot before the middle; a tolerably wide external border, widest at apex, where it is interrupted by an externally bisinuated spot of the ground-colour, interrupted on the third median branch by a square excavation, near to which is a yellow spot on the fringe: secondaries of female with a clavate patch commencing in a large costal spot and crossing the cell; a narrow curved bar at the end of the cell and a tolerably broad uninterrupted external border: face, tips of palpi, antennæ, two spots on the collar, a large spot on each tegula, a large dorsal spot on the female, a second (metathoracic) dorsal spot on both sexes, and in the female the anal segment, blue-black; body below transversely barred with black; legs black. Expanse of wings, ♂ 70 millim., ♀ 71.

Wadelai, 11th and 12th January, 1887.

Nearest to *P. thewallii*, Druce, but differing from it in the narrower border to the secondaries, and from all the three described species—*P. thewallii*, *P. bellatrix*, and *P. tigris*—in the straight instead of angulated bands on the primaries; the orange of the male is paler than in the female but is quite uniform; in *P. tigris* the primaries are decidedly paler than the secondaries.

#### LITHOSIIDÆ.

##### 137. ARGINA CINGULIFERA.

*Deiopeia cingulifera*, Walker, Cat. Lep. Het. ii. p. 569. n. 7 (1854).

♀. Wadelai, 18th March, 1887.

##### 138. DEIOPEIA PULCHELLA.

*Tinea pulchella*, Linnæus, Syst. Ent. i. 2, p. 884. n. 349 (1766).

Wadelai, 13th and 20th January, 8th and 9th February, and 11th March, 1887.

#### NYCTEMERIDÆ.

##### 139. LEPTOSOMA LEUCONOË, var.

*Nyctemera leuconoë*, Hopffer in Peters's Reise, pl. 28. fig. 3.

Fóda, 3rd and 20th November, 1887.

#### LIPARIDÆ.

##### 140. CROPERA TESTACEA.

*Cropera testacea*, Walker, Cat. Lep. Het. iv. p. 826. n. 1 (1855).

♀. Monbuttu, in July or August.

One much worn example. The species was originally described from Natal.

#### LASIOCAMPIDÆ.

##### 141. JANA GRACILIS.

*Jana gracilis*, Walker, Cat. Lep. Het. iv. p. 913. n. 8 (1855).

Kangasi, 3rd October, 1883.

One very much-worn male.

##### 142. JANA STRIGINA.

*Jana strigina*, Westwood, P. Z. S. 1849, p. 37.

♀. Stazione Bauri, September 1883.

The description of this species was taken from an example received from Sierra Leone; it is rather vague, but agrees in so many respects with the specimen now obtained that I have no hesitation in identifying the latter with it; the basal half of the secondaries is not strictly speaking black, for the costal third is of a pale brown colour, crossed by the white belt before basal third; this belt also is very wide in front, so that towards the costa it occupies quite a third of

the basal half; then, again, the whole of the brown stripes on the primaries cross these wings from costal vein to inner margin; but the primaries of the type may have been somewhat rubbed, which would account for this discrepancy.

## SATURNIIDÆ.

## 143. HENUCHA DELEGORGUEI.

*Saturnia delegorguei*, Boisduval, Voy. de Deless. ii. p. 601 (1847).

♂ ♀. Monbuttu.

One much-worn pair.

## 144. ATTACUS BAUHINIÆ.

*Bombyx (Saturnia) bauhinia*, Boisduval in Guérin's Règne Anim., Ins. p. 506, pl. 86. fig. 1.

♂. "Vusterma," 26th May, 1883.

## 145. ANTHERÆA EMINI, sp. n.

♀. Nearest to *A. gueinzii* and *A. wahlbergii*; bright chrome-yellow, the central belt across the wings formed as in *A. gueinzii*; the bands limiting this belt rufous-brown, irrorated with grey and pink scales, the centre rather densely irrorated with dull ferruginous scales; the ocellus at the extremity of the discoidal cell of primaries D-shaped, its outer edge dark plum-colour, its iris orange, its pupil hyaline-white; the ocellus of the secondaries almost exactly as in *A. gueinzii*, a broad submarginal zigzag rusty brown squamose band, which, however, is wanting on the apical half of secondaries; outer margin orange-tinted, fringe brown: antennæ and face somewhat rufous; abdomen with ill-defined rust-brownish dorsal region; underside with markings less defined than above; the inner band of the central belt wanting, the whole basal area of secondaries flesh-tinted, the zigzag submarginal band replaced by a series of triangular rufous-brown spots. Expanse of wings 148 millim.

Stazione Gadda, 1st June, 1884.

This magnificent species is considerably larger than either of the allied forms with which I have compared it.

## APAMIIDÆ.

## 146. AMYNA UNDULIFERA.

♂. *Amyna undulifera*, Butler, Ann. & Mag. Nat. Hist. ser. 4, vol. xvi. p. 403 (1875).

♀. Wadelai, 8th April, 1887.

One worn example, apparently referable to this species.

## OPHIDERIDÆ.

## 147. OPHIDERES MATERNA.

*Phalœna-Noctua materna*, Linn. Syst. Nat. ii. p. 840. n. 117 (1766).

♀. Wadelai, 15th March, 1887

## OMMATOPHORIDÆ.

## 148. CYLIGRAMMA LATONA.

*Phalæna-Noctua latona*, Cramer, Pap. Exot. i. pl. 13, B (1779).  
Wadelai, 12th March, 1887.

We have this species from Western and Eastern Africa; it is abundant, and occurs in nearly every African collection received.

## OPHIUSIDÆ.

## 149. SPHINGOMORPHA MONTEIRONIS.

*Sphinxomorpha monteironis*, Butler, Ann. & Mag. Nat. Hist. ser. 4, vol. xvi. p. 406. n. 81 (1875).

Wadelai, 15th March and 12th April, 1887.

## 150. OPHIUSA ANGULARIS.

*Ophiusa angularis*, Boisduval, Faune Ent. de Madag. pl. 13. fig. 2 (1833).

Wadelai, 8th April, 1887.

## 151. GRAMMODES GEOMETRICA.

*Phalæna-Noctua geometrica*, Rossi, Fauna Etr. ii. p. 179.

Wadelai, 11th March, 1887.

## 152. TRIGONODES ACUTATA.

*Trigonodes acutata*, Guénée, Noct. iii. p. 283. n. 1728 (1852).

Wadelai, 15th March, 1887.

## REMIGIIDÆ.

## 153. REMIGIA PELLITA.

*Remigia pellita*, Guénée, Noct. iii. p. 318. n. 1780 (1852).

Wadelai, 8th April, 1887.

## POLYDESMIDÆ.

## 154. POLYDESMIA BOARMIOIDES.

*Polydesma boarmioides*, Guénée, Noct. ii. p. 442. n. 1315 (1852).

Wadelai, 10th March, 1887.

## MACARIIDÆ.

## 155. TEPHRINA DEFECTARIA?

*Tephрина defectaria*, Walker, Cat. Lep. Het. xxiii. p. 962. n. 29 (1862).

Wadelai, 15th March, 1887.

## FIDONIIDÆ.

## 156. STERRHA SACRARIA.

*Phalæna-Geometra sacraria*, Linn. Syst. Nat. i. 2, p. 863 (1766).

Wadelai, 27th January and 29th March, 1887.

6. On some Coleoptera from Eastern Equatorial Africa, received from Emin Pasha. By CHARLES O. WATERHOUSE, F.E.S.

[Received January 6, 1888.]

The small series of Coleoptera received from Emin Pasha is interesting as containing examples of one species new to science, and of six which had previously been received at the British Museum from West Africa only, as indicated in the following list. The localities from which the other species have been recorded are also here given.

- |  |             |
|--|-------------|
| 1. TEFFLUS HACQUARDI, Chaudoir.                    | Zanzibar.   |
| 2. TEFFLUS CARINATUS, Klug.                        | Mozambique. |
| 3. CATHARSIVS SESOSTRIS, Dej. ( <i>in litt.</i> ). | Egypt.      |

A single male example which agrees well with one from Egypt from Dejean's collection and labelled by him 'sesostris.' *C. sesostris*, Dej., according to Gemminger and Harold's Catalogue of Coleoptera, is the same as *C. pithecius*, Fabr., and has the habitat Tropical Africa placed to it. *Scarabæus pithecius*, Fabr. (Syst. Ent. p. 21), however, is an Indian species (as Fabricius correctly states), and the type in the British Museum collection is simply an immature specimen of *Scarabæus sabæus*, Fabr. (Spec. Ins. i. p. 23), the type of which is also in the British Museum.

The African species differs from the true *sabæus* in having the sides of the thorax less rounded anteriorly, and the anterior angles are punctured all over, whereas in *C. sabæus* they are impunctate<sup>1</sup>.

- |                                    |            |
|------------------------------------|------------|
| 4. CORYPHOCERA AFRICANA, Drury.    | W. Africa. |
| 5. STERNOCERA KLUGII, Thomson.     | Nubia.     |
| 6. TETRALOBUS SUBSULCATUS, Guérin. | Abyssinia. |
| 7. TETRALOBUS DUFOURI, Candèze.    | Senegal.   |
| 8. TETRALOBUS CRIBRICOLLIS, n. sp. |            |

*Piceo-niger, parum nitidus, subtiliter griseo-pubescentis; capitis fronte antice modice angustata, medio fovea elongata impressa, vertice carina brevi munito; thorace nigro, bene convexo, confertim sat fortiter rugoso-punctato; elytris creberrime subtiliter punctatis, striis dorsalibus obsoletis, striis duabus abbreviatis prope humeros distinctis.*

Long. 13-16½, lat 4½-5¼ lin.

Allied to *T. rotundifrons*, but narrower, less shining, and with the thorax rugosely punctured. Frontal plate distinctly narrowed in

<sup>1</sup> *C. cribricollis*, Walker, placed as a synonym of *C. sabæus* in Gemminger's Catalogue, differs from that species in being less shining and in having only the outer half of the anterior angles of the thorax punctured.